BOOK REVIEW


The delivery of high-quality horticultural products to the consumer is influenced by many factors, post-harvest technology being among the most important. Often, the problem of effective elimination of some pests and, simultaneously, preservation of the quality of fresh products is complicated. Twenty-four authors from Australia, Canada, New Zealand and the USA decided upon a "catalogue" of possible post-harvest insect control treatments and evaluated the effectiveness of each of these treatments.

The book is composed of 17 chapters grouped in four sections. Each chapter is accompanied with a list of references, one of the assets of the book.

The Introduction and the first section, Quarantine Criteria, are characterizing quarantine methods, host plant status and natural resistance of the host plants to insect pests. Statistical methods used in bioassays and maximum pest limits are reviewed in the section.

In the second section, Physiological and Biochemical Response of Insects to Possible Disinfection Procedures, the most used methods of disinfection are discussed. Fumigants – methyl bromide, phosphine, ethylene dibromide, hydrogen cyanide, acrylonitrile and carbon disulfide are characterized with respect to their use and mechanism of action. The resistance of insect pests to fumigants and its mechanisms is also briefly stated. Since the use of fumigants has many drawbacks, stress is laid upon alternate methods like irradiation, heat and cold treatments, and controlled atmospheres. The effects of gamma, electron and X-rays irradiation on insect development, midgut and nervous tissues, some biochemical constituents, behaviour, longevity and ageing are described. Heat and cold treatments are also mentioned though their practical use is almost excluded since some deleterious effects to fruit quality cannot be avoided. The use of modified atmospheres, based on high content of CO₂ and low content of oxygen, and factors influencing their efficacy, is discussed in another chapter. "Classical" insecticides are not included as a means of disinfection of plants and their products.

Product Physiological and Biochemical Response to Possible Disinfection Procedures is the third section. The effects of above-mentioned treatments on horticultural commodities are described, with an emphasis on external and internal injury to fruit, their shelf-life and changes in their chemical constituents.

Chapters of the fourth section, Individual Product Treatments, examine individual products – tropical, subtropical and temperate fruits, vegetables, ornamentals and flowers. Required techniques of disinfection (quarantine treatment schedules) are reported for each commodity, with an emphasis on tephritid flies, tortricid fruit moths and weevils as the most important pests.

Besides a detailed review of techniques used in quarantine practice, great attention is devoted to techniques and treatments under current research. Therefore, the book is highly recommended not only for quarantine workers, but also for all who are interested in horticulture and entomology.

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